GEOLOGY *Today*

INDEX, Volume 14, 1998

A-level fieldwork guide, Charnwood Forest 195–8
Aberystwyth Grits 52
Absaroka volcanics 232–3, 234
acanthite 192
acid rain, on Mars 3
acritarch thermometry 100–1, *102*
Adams, R.D. *see* Ambraseys, N.N., Melville, C.P. and Adams, R.D.
Advances 63–5, 103, 137–9, 218–20
African Plate, and South American Plate, relative motion between 103
Agricultural Select Committee, suggests coastal protection may be counter-productive 207–8
Alaskan amber 156
Albert Embankment, London 181
Albert Memorial, refurbishment of 212–14
algae, calcareous 26
all-India Vulnerability Atlas 212
Alpine-Himalayan formation causally related to Andean deformation 103
amalgam 192
Amber: The Natural Time Capsule, A. Ross 174–5
  amber a colourful presentation 174–5
  Cretaceous deposits 156
  heleomyzid fly in 49
  palaeontology of (Fossils explained 22) 154–60
    copal-producing areas 154
    deposits 154, 156
    epizoochory 158
    formation 154
    micropalaeontology 160
    palaeosymbiosis in 158
    as a preservative of tissues and ancient DNA 156, 158
    taphonomy of 156
    trace fossils 158, 160
  Picardy site, rising waters in 123
Ambraseys, N.N., Melville, C.P. and Adams, R.D., *The Seismicity of Egypt, Arabia and the Red Sea* 118–19
Ambulocetus natans, ancestral to whales 119
American Embassy, security stone 50–1
amino acid racemization 156, 158
ammonites 89
  North American belief 143
  snakestones 143
  in Somerset 51
  Wooton Bassett 127
Andes, continuing growth of 138
ANDREWS, P.
  catering for earth-science tourists in New Zealand 53–4
  Volcanic matters in New Zealand 172
Anning, Mary a bicentennial celebration 129
  Fossil Woman (play) 4
Annis, Walter 116–17
Antarctic Plate 12
The Antiquity of Man, C. Lyell 115
ants, fossil, older than we thought 202–3
aquifers
  granitic, microfossils in calcite 62
  Precambrian and Palaeozoic, Norway 104
Arabia, *Encyclopedia of the History of Arabic Science*, lacks geological content 165–6
Archaeocidaris 235, 236, 238, *239*, 240
Arctic Ocean floor, recent volcanic activity 100
argentite 192
Argyrotheca 27
Arish Mell 73, 74
Aristotle's Lantern 238
arsenic, mass poisoning by, Bangladesh 85
art
  inspired by science and nature 93–4
  temporary, Melton Chalk 167
artificial stone, *Passage Paving*, R. Harris 184, *185*
Asfordby Mine, failure of 91
Asian Plate 70
Äspö Hard Rock Laboratory, Sweden 62
asteroids 177
  1997XF11, no longer to collide with Earth 122
  holey 7
  life on? 7
  as sources of micrometeorites 178–9
  Vesta
    crater on 7
    now 4 Vesta 64
At the Water's Edge, C. Zimmer 170
Atlas of Mesozoic and Cenozoic Coastlines, A. G. Smith, D. G. Smith and B. F. Funnell 38–9
Aulechinus 235, 236
Ausktribosphenos nyktos 46, 82
Australia
  extinction of megamarsupials 124
  Hammersley Basin, spherule marker bed 217
  placental mammals
    failure 82
    life extended further back 46
  see also Western Australia
Australian Plate 13
  two plates separated by Ninetyeast Ridge 12
  see also Indo-Australian Plate
Austria, alpine swamp-forest fauna 136–7
autolysis, affects amber inclusions 156
AYRTON, S., Not only the end of geology (let.) 139–40

Baby Bare, Juan de Fuca Ridge 216
BALDWIN, S.A., Charles Lyell and the extraordinary publishing history of his works 113–15
Balearic Basin, megaturbidite and gas hydrate 138
Ballantyne, C.K. and Harris, C., *The Periglaciation of Great Britain* 40
Baltic amber 154
Bangladesh 42
  arsenic crisis 85
BANKS, D., *et al.*, Is pure groundwater safe to drink?: natural 'contamination' of groundwater in Norway 104–13
Baptist magma rise 10
Barga Plains 68
Barnack Stone 221
barns, restoration or ruins 85
basalt
  columnar 234
  mid-ocean-ridge, now present on Iceland 98
Basin and Range Province, western USA, extension supressed volcanism 103
basket stars *see* ophiuroids, post-Palaeozoic
Bath Stone 200
Bath Stone mine, failure in *148*
BATTEN, D.J.
  Geology and the National Trust (Mussenden Temple) (let.) 176
  The Jehol Fauna 169–70
Bawden, Lis Anne MBE 6
BAYS (British Association of Young Scientists), at BA 1998 171
BBC, and *Essential Guide to Rocks* 164
Beacon Hill Formation *195*
Beacon Tuff Member *195*
Bed-Meir Formation 11
bedding, graded 177
belemnites
  belemnite guards, as thunderbolts 142
  in Germanic folklore 144–5
Bembridge Limestone, Quarr Stone a facies 90
Benscliffe Member *195*
Bering Plate, now clearly delineated 100
beryllium 106, *108*, 109
Bewerly Liberty, Yorks. 23
BGS and BAAS photo databases 58–60
  separate but linkable database projects 59
Bilsthorpe Colliery 91
biodiversity, of reefs 26
biomechanics, comparative, and *Tyrannosaurus* as a predator 17–18
biostratinomy 156
biotite 33, 33–4, 34
  where found 35
birds
  descent from dinosaurs, possibly 42
  descent from theropod dinosaurs, or not? 219–20
BJORVATN, K. *see* BANKS, D., *et al.*
Black Sea, new hypothesis on origins of 122
black shales, Albian–Cenomanian 222, 226
black smokers, exploitation of 82
Blackbrook Group 195, *195*, 196
Blackbrook Reservoir Formation *195*
Blenfire Coal Seam 210
Blenfire Rocks 211
boiling springs, and hot pools, Yellowstone 231, *232*
bolide impact, Archean 217
Bolivia, possible *lagerstätten* at Cal Ork'o 208
Books, Cambridge University Press 37–40, 119
Boulby Mine, extension of granted 92
Bowden Formation 27
boxplots
  comparing radon concentrations *108*, *112*
  explained *112*
brachiopods, Manchioneal Formation 27
Bradgate Formation *195*
Branch Line 119–20, 198–200
Brand Group 195
Brazil, Cretaceous dragonflies 119–20
brazing/soldering/welding, use of silver 193
breccia, volcanic 195
A Brief History of the Westmorland Geological Society, V. Parsons 117
Briefing 2–10, 42–9, 82–6, 122–7, 162–8, 202–10
British Association for the Advancement of Science (BAAS)
  1998 Cardiff Meeting 170–2
  Leeds Meeting, Halstead Lecture 16–20
  photograph collection 58–60
    documentation variable 59

Figures and Tables are given in italics.

British Geological Survey (BGS)
1 : 50 000 Memoir series to go (let.) 141
Address Linked Geological Inventory (ALGI) 43
BGS field photographs 58–60
Photograph Description Sheet 59, *60*
Discovering Geology: Fossil Focus, Foraminifera 44
Earthquakes: Our Trembling Planet 44
Earthwise series, *Whisky on the Rocks* 130
Fossils: The Story of Life 45, 94
Geochemical Baseline Survey of the Environment (G-BASE) 204
Groundwater: Our Hidden Asset 45, 94–5
Holiday Geology Guides
Mining in West Cornwall 162
St Pauls 44
Westminster 44
Holiday Geology Maps
Isle of Wight 44
Lake District 44
North Yorks Moors 162
Regional Geochemistry of North-East England 204
Regional Geochemistry of Part of North-West England and North Wales 204
studying internal features of alluvial gold grains 189
United Kingdom Mineral Yearbook 1997 91–2
Welsh/Borders map coverage incomplete 165
letter 221
World Mineral Statistics 91
Yorkshire Rock: A Journey Through Time 45
brittle micas 35–6
brittle stars *see* ophiuroids, post-Palaeozoic
Broome Sandstone Group 75, 139
stratigraphy 76–7
change from paralic carbonate to terrigenous clastic deposition 76
brown coal basin, Styria, Austria 136–7
building stones
Huddersfield 96
mined around Bath 148
the true story of Quarr Stone 89–90
buildings, world's oldest, beneath the sea 125
BULL, R., Does rock clearance in Cheddar Gorge matter? 131
BUTLER, R., new Caen Stone for Norwich Cathedral 58

Caen Stone 47, 90
Norwich Cathedral 58
Caithness flags, export and home use 83
calcium, in Norwegian drinking water 105–6
calderas, Yellowstone National Park 230
Calyptogena magnifica, temperature recorded in shell during growth 217–18
Cambrian, early, sudden shifts in 14
Campbell, W.H., *Introduction to Geomagnetic Fields* 38
Canyonlands: A Guidebook to the Geology of the Colorado Plateau, T. Waltham 165
carbon dioxide, emitted by hot springs 49
carbonaceous chondrites 7, 180
Carbonicola cristagalli 211
Carboniferous Limestone, Martin/Watson fossil catalogue 22
Carcharadon megalodon, fossil teeth of 143
Carrara Marble, quarry company bankrupt 125
Castlewellan Granite 214
catastrophism, to neo-catastrophism 123–4
caves, Jamaica 91
Cenocrinus asterius 28
Chalk, Lulworth Bay 71, 73
chalk mines
collapse of 145, *145*
reasons for 147
CHAMBERS, R., on the National Park Quarry refusal 95–6
Chandrasekhar, B.S., *Why Things Are the Way They Are* 118
channel-fill deposit 198
Chapada do Araripe fauna 119–20
Charnian Supergroup 195, 196
Charnodiscus concentricus 197
Charnwood Forest, A-level fieldwork guide 195–8
Blackbrook Reservoir 196
Bradgate Park 193, 196–8
High Cademan, near Whitwick 195–6
Swithland Wood and Woodhouse Eaves 193, 198
Cheddar Gorge, does rock clearance matter? 131
Cheltenham, 100 years of geology teaching 31–2
chert mines 149
Chicxulub impact structure, debris from at Blake Nose 225
China
escaping fossils! 209
mining disasters 47
see also Jehol fauna
Chinese puzzle 14–15
chlorargyrite 192
Chocolate geology 52–3
chondrules 180
Christmas River, eastern Jamaica, crinoids 28, 30
Cidaris (Tretocidaris) bartletti 28, *29*
Cinder Bed 71
changes in dip of 74
folded 71–2
clams, go hot and cold 217–18
clay minerals, in micrometeorites 178
cliffs
an Irish folly compounded? 48
underwater, steepest 48–9
climate change
in a greenhouse world (late Albian) 225–6
Milankovitch theory of 223
clintonite 36
clouds, or rather mountains 126
Clypeaster lamprus 28, 29
coal
old mine workings uncharted 146
opencast working 92
UK production dropping 91
coal holes! 47
Coal Measures 94
coalified compression 99
coastal madness 166–7
coastal protection
counter-productive 207–8
is it desirable? 8
Cockpit Country, Jamaica, mature cone karst 91
Cocos Plate 10
coinage, silver in 194
collision tectonics 138
Colorado Plateau (USA), tourist's geology Guide 165
colour changes in acritarchs, Poland 101
colour cycles, Milankovitch-related 223
Columbia River Basalts 99–100, 230
comets 177
Community 3–6, 43–6, 126–7, 162–6, 203–7
compression, north–south in Tibet 70
concrete slabs, poor showing of 183–4
Confuciusornis, furtive exports 209
conglomerate, tuffaceous 198
Constable, C. *see* Parker, B. and Constable, C.
continental lithosphere, Archean, generation of 103
Contrapuntal Forms, Barbara Hepworth, in 'Irish Blue' 184
Cook–Austral volcanic mountain chain 65
Cool Scar Quarry, Wharfedale, life not to be extended 209
copal 154
copper
prehistoric workings 147
where was Punt? 174
coprolites 89
Frenchman Formation 133–4
corals, scleractinian 26
Correspondence 15, 65–6, 139–41, 176, 220–1
corundum 34
Cosmic Football 179
cosmic spherules 179
Crafford Prize for Geosciences, D. L. Anderson and A. Djiewonski 163–4
Cravenchinus 235, *237*
Cretaceous
Blake Nose, hiatus in sequence 225
early, origin of ants 203
Crich Anticline, section through 22
crinoids, Manchioneal Formation 28, 30
crop marks 87
cross-bedding 192
crown hole failures *146*, *147*
cryptoexplosion structures, southern-USA 216
Cucullograptus, evolutionary changes in *63*

Dales National Park, quarrying permissions voluntarily relinquished 208–9
DAVIS, A.J., Mussenden Temple cliff stabilization (let.) 140
Dead Sea Transform 218
debris flow *see* slump breccia
Deep Space 8
Deep Structure of the Alps: Results of NRP20 203
deformation
after plate collision 138
aseismic 218
demolition products, recycling of 92
dental morphology, *T. rex* 18
depurination 156
Derbyshire Coalfield 23
Derbyshire dykes, a dilemma (let.) 66
Derbyshire 'Fossil' Marble 184
Derbyshire Screwstones 144
Derbyshire Tablets 23, 24
deuterium ratios, comet Hale-Bopp matches those in Earth's oceans 166
diamonds
errata 9
preserving details of rocks beneath Archean cratons 103
within Popigai crater 60–1
'dianite', to be or not to be 84
Dickinsonia, possible habitat 208
dinosaur eggs
auctioned to pay for gale damage 85
Indian, 'Shiva's testicles' 7
dinosaur film mixup 168
dinosaur tracks
Broome Sandstone Group 75–6
letter 139
saurischian 75
Dinosaurland, Lyme Regis, upgraded 167–8
dinosaurs 202
call of recreated 49
damage to partially excavated skeleton 9
determining speed from footprint spacings 82–3
a dino skull on the Space Shuttle 85
Dinobase website 206
dinosaur graveyard 208
feathered 210
in Italy 126
a jigsaw puzzle of bones 9
diorite
coarse-grained 197
defined 195
Diplocrinus maclearanus 28
disaster management, need for, north-east India 211–12
disasters 122–6
ancient 122
forthcoming 124–5
future, building on floodplains 126
'Discover Dorset', Dovecot Press
Geology, P. Ensom 214–15
Stone Quarrying, J. Thomas 215–16
Discovery 202–3
distilleries, Scotland, old and active 130
Diving Deep on a Pleistocene Reef in eastern Jamaica 26–30
DIXON, D., *T-Rex: Back to the Cretaceous*, 3D IMAX show 214
DNA, ancient, preservation of in amber 156, 158
dolphin lamp standards, once granite now concrete 186
Dominican amber 154

DONOVAN, D.T., Somerset: hunting ground for ammonites 51
DONOVAN, S.K
appointment as Keeper of Palaeontology at the NHM 134–5
and HARPER, D.A.T., Diving Deep on a Pleistocene reef in eastern Jamaica 26–30
see also LEWIS, D.N. and DONOVAN, S.K.
dorsal disc plating, ophiuroids 78, 78–9
dragonflies, Cretaceous 119–20
Drilling Blake Nose 222–6
boundary clay, early Danian fossils 25
climate change in a greenhouse world (late Albian) 225–6
the late Palaeocene thermal maximum event (LPTM) 222–4
meteorite impact at the Cretaceous–Tertiary Boundary 224–5
mid-Maastrichtian deep water reversal 226
drinking water, poor quality of in Norway 104
Drom Revermont stone 50
Du Noyer, George Victor, geologist and artist, remembered 4, *5*
Durdle Door–Pondfield Cove, Portland Stone cut by faults 74
Durlston Formation 71, 74
Durness Limestone, Reindeer Cave 3
dust particles, controls on orbits of 178
dust tuffs 196, 197

Earth Galleries (NHM), completed 128–9
Earth sciences
continuing support from the European Science Foundation 206
Crafford Prize, Royal Swedish Academy of Sciences 163–4
earth scientists honoured 45, 162
earth tremors, affecting England's World Cup chances? 9
The Earthquake Mass 127
earthquake precursors 2
earthquakes 36–7
California, missing? not really 208, 218
Earthquakes: Our Trembling Planet (BGS) 44
the engineering solution 164
from superfaulting 11
healing of shattered fault regions 137
Hyogo-ken Nanbu Earthquake 26–30
and megaturbidites 138
Ninetyeast Ridge 12
River Jordan 218
'slow'/'silent' 2
East Pacific Rise 230
Echinocorys, Shepherds Crowns/Fairy Loaves 144
Echinocystites 235, 236, 236
echinoderms, Cambrian and Ordovician 235
echinoids
Manchioneal Formation 28, *29*
Palaeozoic (fossils explained 23) 235–40
ambulacra and interambulacra 235
ambulacral pores 235–6
Aristotle's Lantern 238
preservation of 238, 240
regular 235, *236*, *237*, *239*
spines and tubercles 236, 238
survivors of the end-Permian mass extinction 238
post-Palaeozoic 235, 238
Echinolampas depressa 28, *29*
Echinoneus cyclostomus 28, 29
Ectinechinus 235, 236
Ecton Tablets 22
Ediacaran fauna, modelled 208
Edinburgh International Science Festival (10th) 5–6
further hands-on experiences 5–6
Rocks and Rubies Workstation 5
education, at BA1998 171–2
educational tablets, White Watson 22–3
eggs, fossilized, of marine invertebrates, China and Siberia 64
Egypt, from whence the Neolithic engineers 85
El Niño, causing disasters 124
electron probe microanalysis, and gold grain classification 187
elements
identification of at trace and ultra-trace level 188–9
natural ranges of concentration in groundwater bedrock 108, *109*
Elements of Geology, C. Lyell 114, 115
Elrathia kingii, believed to ward off illness 143
Eltanin impact area, dating and assessing 61
Emperor chain, cannot be explained entirely by plate motion above a stationary plume 102–3
Encyclopedia of Planetary Sciences 204–5
Endpiece(s) 10, 49, 86, 127
English Heritage and the Albert Memorial 213
English Nature, *Windows in Time: Earth Heritage and Local Nature Reserves* 46
environments, past 89
Eosipterus yangi 15
epizoochory 158
Epping Forest, London Clay Ridge of 198
Erith, Kent, remains of ancient forest trees exposed 168
Erne Valley 152
Eromanga Basin, Australia 220
Ethiopian traps, associated with Afar hotspot 61–2
Eucidaris tribuloides 28, 29
Europa
curious surface of 48
earlier Galileo pictures 137
European infrared space observatory (ISO), water observations 166
European Science Foundation, key themes for 1998–2001 period 206
Excursion Guides 229–35
Exhibitions, Images of Nature, Natural History Museum 57–8
extension, and volcanic eruption 103
extinctions
Eocene 62
K–T boundary 222
megamarsupials 124

FALVEY, D., mapping Wales (etc) (let.) 221
Farallon Plate, evolution of 10
faults 218
constrained 10–11
in the Lulworth Cove area 71, 72, 73, 74
thrust faults in Chalk 73, *73*
unconstrained 11
$Fe^{2+} \rightarrow Fe^{3+}$ profundity of 12
fecal pellets, even more ancient 49
Firehole River 231
fissility, due to muscovite 34
flagstones, mined from Millstone Grit 149
Flamsteed, John, and 0° meridian 6
flash boiling 230
flint mines 150
flood basalts
Columbia River basalts 99–100, 230
continental, Ethiopia 61–2
and the Yellowstone plume 99–100
floods/flooding
Iceland 97–8
in the UK 126
fluoride
in Norwegian drinking water 104–5, 106, 109
a toxic poison 141
fluorosis, dental/skeletal 104, 141
flysch, overlying Kailas Conglomerates 70
folding, flexural-slip (def.) 197
Food of the Dinosaurs, B. A. Thomas and C. J. Cleal 205
footprints and trackways, fossilized, testament of living animals 16–17
FORD, D., White Watson's Tablets 21–5
FORD, T., A country full of holes 145–51
Forest of Dean, threatened in spite of New Labour promise 125
Forest Marble 215
fossil diagenesis 156
fossil wood, Cesi drawings (let.) 15
Fossils: The Story of Life, S. Rigby 45, 94
fossils
in amber 154–60
on American Federal Land, lost to erosion 48
Ediacara-type 197
Fossils: The Story of Life (BGS) 45
mislabelled, an important transition specimen 46
in 'Teach Yourself Geology' past and present 163
Fossils explained 77–80, 154–60, 235–40
Fossils in folklore 142–5
Foundations of Geomagmatism, B. Parker and C. Constable 36–7
freibergite 192
Frenchman Formation 133–4
frictional melt zones 11
Froude numbers, and dinosaur speed 82–3
fuchsite 34
fullers earth 150
fumaroles, Yellowstone 234
building geyserite columns 232
Furnace Creek Structure (Cambrian) 216
Fuxin Formation 169

gabbro 183, 184
galaxies, a new oldest 166
Galileo spacecraft 48
earlier pictures of Europa 137
Near-Infrared Mapping Spectrometer (NIMS) 64
gas, in old mine workings 151
gas hydrates and megaturbidites 138
research in the Mackenzie Delta 164
Gault Clay 71
GEMS (Glass With Embedded Metal and Sulphide) grains 180, 181
generic diversity, at Vendian–Cambrian boundary 14
genetics, developmental 170
GENGE, M., Micrometeorites: Little rocks with a big message 177–81
Geodigest 10–15, 60–5, 98–103, 135–9, 216–20
A Geological Excursion Guide to the Causeway Coast 153
Geological monuments on the South Bank 181–6
beyond Hungerford Bridge 184–6
from Westminster Bridge 182–3
geological nature reserves 46
geological reports, small-area from BGS 43
geological societies 116
Geological Society, not consulted in Technology Foresight Programme 125
Geological Survey of Canada (GSC), Earthquake Hazards Program 164
Geological Survey of Norway (NGU)
radon study of Norway's waterworks 111
water samples for chemical analysis 109–10
Geologis(z)ing in Westmorland 115–17
geology
as fun, The Earth-Fun Roadshow 88–9
for loafers 84
local
a different Dorset 214–16
Northern exposure 96–7
Millennium projects under the Millennium Commission 207
Yorkshire Geological Society 205–6
and the National Trust (let.) 176
pop-up, *The Earth Pack* 205
public, Glodwick Lows, Oldham 210–11
Geology Today, corrections 9–10
geomagnetic field, always there 99
geomaterials MSc, transfer to Greenwich University 6

geothermal heat, affecting Grimsvötn subglacial lake 97
Geotourism 151–3
  Great Western style 86–7
  standard of guides and leaflets 152–3
geowhisky column *130*
geyserite 230, 232
geysers 230–2
  Whakarewarewa Thermal Reserve 54
giant planets, reducing atmospheres of 61
Giant's Causeway, North Antrim Coast, guides 153
Gierlowski-Kurdesch, E. and Kelts, K. (eds.), *Global Geological Record of Lake Basins* 38–9
Glasgow University, downsizing the Geology department 122
glass sand mines 148, *149*
glauconite 33, 34
Global Geological Record of Lake Basins, E. Gierlowski-Kurdesch and K. Kelts (eds.) 38–9
global warming, affecting North American permafrost 9
Glodwick Lows, Oldham, geology made public 210–11
gneiss, Scandinavian 200
gold 192
  analysis of by EPMA 190
  Bronze-Age, characterization 191
  enough information available for a database 189, 190
  linking ores to artefacts 188, 190–1
  Seeking the source of the gold used for Irish Bronze-Age goldwork 187–91
Gorgosaurus 18–19
GOSNELL, R., GPS and the Greenwich Meridian(s) (let.) 141
granite 51
  capping to flood-defence embankment 182–3
  Cornish Granite 200
  Scottish and Cornish 181
  for sculpture 93
  two-mica 183
granite grindstone, from Coade Stone factory 186
graphite mining 150
graptolite Valhalla 62–3
gravel pits, in terrace deposits 199
The Great Comet Crash, J. R. Spencer, and J. Mitton (eds.) 39
Greensand 71
Greenwich meridian(s) 6–7
  and GPS (Let.) 141
  marked near Waltham Abbey 200
Greenwich University, MSc in geomaterials 6
greywacke 198
  tuffaceous 196
Grimsvötn subglacial lake, drainage of and megafloods 97
Groundwater: Our Hidden Asset, R. A. Downing (compiler) 45, 94–5
groundwater
  by cartoon 46
  Groundwater: Our Hidden Asset (BGS) 45, 94–5
  natural contamination of in Norway 104–13
    the '150 samples' study 106–8
    fluoride view (let.) 141
    lithology and bedrock chemistry 110
    the national study 108–10
    problem parameters 104–6
    Quaternary groundwater 110–11
Gryphaea arcuta
  in Coat of Arms 143
  Devil's toenail 143
  other folklore names 144
Guess who's coming to dinner: A portrait of *Tyrannosaurus* as a predator 16–20
Guide to the Building Stones of Huddersfield 96
gypsum, salt and other evaporites, holes from mining 147–8

Haakon Mosby Mud Volcano covered by methane hydrate sheets 2–3
  warm seeps 3
hackly fracture 192
Halley's comet
  dust from 177
  Fe/(Mg + Si) ratios of dust grains in coma 181
Hallgate Member *195*, 197, 198
Hanging Rocks Member *195*, 198
Happisburgh, to protect or not 207–8
hardgrounds 225–6
HARPER, D.A.T. *see* DONOVAN, S.K. and HARPER, D.A.T.
Harris, C. *see* Ballantyne, C.K. and Harris, C.
Harrison, T.M. *see* Yin, A. and Harrison, T.M. (eds.)
Hauteville Stone 51
Hawaiian–Emperor chain, possible reasons for bend in 101–2
hazard-prone areas 212
health, damaged by groundwater 106
heleomyzid fly, embedded in amber 49
Hell Creek, Montana, largest tyrannosaurus 16
HIDE, E., The Earth-Fun Roadshow 88–9
Himalayas, uplift of 70
Hodge, P., *Meteorite Craters and Impact Structures of the Earth* 39–40
Holbeck Hall Hotel, Scarborough, slipping into the sea 7–8
holes
  Jamaica 91
  UK 145–51, 209
homeobox genes 170
The Hoodoos, Yellowstone 232
Hoptonwood Stone 213
hot springs and geysers, Yellowstone 230–2
Hubble Space Telescope, photograph of crater on asteroid Vesta 7
Huckleberry Ridge Tuff 230, 232
Humboldt Prize, for Johannes Thewissen 119
Huttonian section, Siccar Point, mould from for America 207
Hyattechinus 235, *236*
hydrobiotite 34
hydrothermal activity, and the micas 34
hydrothermal circulation, depositing massive sulphide deposits on the ocean floor 218
hydrothermal processes, and sources of silver 192
hydrothermal springs 216–17
hydrothermal vents, life inside 62
Hymenaea trees, producing copal 154

ice sheet, degrading, effects seen in Lee Valley Regional Park 199–200
Iceland
  built up possibly from two sources 98–9
    migration of ridge zone 98
    Snaefellsnes rift zone 99
  contrasting Skeidarár megaflood hydrographs 97–8
ichthyosaurs
  ancestral terrestrial features 219
  Bedfordshire brickpit 202
Iddefjord Granite
  waters from cf. Scillonian granite waters 110
  yields radon-and fluoride-rich waters 106
illite 34
impact craters/structures
  collapse of under gravity 11
  five may not be first (let.) 220
  multiple 136, *137*
  southern USA? 216
impact-generated products 216
Imperial College, London, geology reorganizes 47
India
  exporting sandstone to UK 167
  north-east, disaster blackspot 211–12
Indian subcontinent, collision with Asian Plate 70
Indo-Australian Plate, three plates – or two? 12, 13
Indus River 68, 70
industrial monuments, Lee Valley Regional Park 200
Industrial revolution, delayed by Henry VIII? 209–10
Inferior Oolite *134*, 148
Insurers' warning, on red alert for catastrophic natural disaster 47
internal moulds (steinkerns), 'osses eds' and Portland Screws 144
International Brigade Memorial 182
International Conference on Disaster Management (ICODIM) 211–12
interplanetary dust particles (IDPs) 180
  mineral assemblages mostly unlike meteors 180
  presolar GEMS in some 181
Introduction to Geomagnetic Fields, W. H. Campbell 38
Io, latest hypothesis on interior heating of 207
Ireland, Wicklow and indigenous gold 187
iridium, Blake Nose 225
iridium anomalies
  Bellinghausen Sea 61
  and the Popigai impact structure 60
The Irish Scientist, C. Mollan (ed.) 126–7
iron
  levels in Norwegian drinking water 106
  oxidation state of in the lower mantle 12
Iron-Age settlement, South Manchester 84
ironstone mines 146, 147
isinglass *see* sheet mica
Island Park Caldera 230
island-arc volcanoes 10
Ives Head Formation *195*

JAGT, J.W.M., Post-Palaeozoic ophiuroids (Fossils explained 21) 77–80
Jamaica
  a country of holes 91
  eastern, diving deep on a Pleistocene reef 26–30
    brachiopods 27
    crinoids 28
    echinoids 28
    Manchioneal Formation 26–7
    palaeodepth 28, 30
Jamaica Underground, the Caves, Sinkholes and Underground Rivers of the Island, A.G. Fincham 91
Japan
  3 years after Kobe 53
  earthquake drill 7
Japanese-US Integrated Ocean Drilling Program (IODP), questions raised about costs 206–7
Jehol fauna 169–70
  components of 169
  geological age of much discussed 169–70
  pterodactyl from 14 to 15
  Sinosauropteryx, part of 135–6
Jehol Group 169
jerk feeding 19
jet, mined at Whitby 149
Juan de Fuca Plate 10
Juan de Fuca Ridge 218
  hydrothermal springs 216–17

K-feldspar 34
K–T boundary
  mass extinctions 222
  meteorite impact at (Blake Nose) 224–5
Kailas: geology of a sacred mountain 67–70
  Asian watershed 68
  Tibetan terranes 69–70
Kailas conglomerates 68–9, 70
Kang Rinpoche *see* Kailas
Karnali River, tributary of the Ganges 68
karst landscape, Jamaica 91
Kauai, Hawaii, sequential shield volcanoes 65
Kelts, K. (eds.) *see* Gierlowski-Kurdesch, E. and Kelts, K. (eds.)
Kennedy, Philip, art inspired by science and nature 93–4
Kentish Ragstone 47, 200
  mined 149
Kilnsey Crag, Yorks. *175*
Kimberella quadrata, then and now 64

KING, R.J
all about diamond 55–6
Silver (Minerals explained 25) 191–4
The micas (Minerals explained 24) 32–6
Kinnekulle, Sweden, meteorites in limestone sequence 64, *65*
KLAUS, A. *see* KROON, D. *et al.*
Klein, C. *see* Schopf, J.W. and Klein, C.
Köchel, L., mapping the geology of the Salzburg area 172, *173*
Koefels slide, Austrian Alps 11
Kozlowski, Roman, work on graptolites 62–3
KROON, D. *et al.*, Drilling Blake Nose:... 222–6

Ladybower Dam, Peak District 83
lagerstätten, possible, at Cal Ork'o, Brazil 208
Landers earthquake, California, healing of fault region 137
landslides
Canada 164
Kintyre peninsula 122
Stap Wantaim Graunbruk (Living with Landslides) 54–5
Langtang slide, Nepalese Himalayas 11
laser ablation inductively coupled plasma mass spectrometry (LA-ICP-MS) 188–9
late Palaeocene thermal maximum event (LPTM) 222–4
lateral arm plates, ophiuroids 78
Latin America 25
Lava Creek Tuff 230, 231
Lea, River
a misfit stream 199
see also Lee Valley Regional Park
leaves, bacterial colonization and authigenic preservation 99
Lebanese amber 156
Lee Valley Regional Park 198–200
Leonid meteor shower 177
Lepidesthes 235, *237*
Lepidocentrus 236, 238
lepidolite 33, 34
where found 35
Lepidotus teeth, toadstones 143
LEWIS, D.N. and DONOVAN, S.K., Palaeozoic echinoids (Fossils explained 23) 235–40
Lhasa Terrane 70
lice, ancient, and Vesuvius 124
lichens, right kind not found on man-made materials 215–16
life within rock
bacteria in deep marine sediments 63–4
granodiorite 63
limestone mines 148–9
limestone pavement 153
limestone restoration, studies continuing 3–4
Lin, River 197
LINGHAM-SOLIAR, T., Guess who's coming to dinner: Portrait of *Tyrannosaurus* as a predator 16–20
lithium 34, 35
lithology, and bedrock chemistry 110
London Clay 198
longitude 0°, the seven-fold meridian 6–7
Lovenechinus 236, *237*
Lower Cretaceous
Madagascar 219–20
Western Australia 75–7
Lower Greensand 148
Lower Ordovician, accretion of meteorites 64–5
Ludlow succession 63
Lulworth Cove, Dorset, Geology of 71–4
evolution of the coastline 74
structures within the sequence 71–3
Lulworth Crumple 71
Lulworth Formation 71, 74
difference in strike 72
Lunar Prospector 8
Lyell, Charles and the extraordinary publishing history of his works 113–15
book finance 115
the books and their editions 114–15
collaboration with John Murray 113
Lyme Regis museum, MBE for curator Lis Anne Bawden 6

Maastrichtian late, ophiuroids 79
mid-Maastrichtian deep water reversal 226
Maccoya 235, 236, *237*
MACDONALD, R., Derbyshire dyke dilemma 66
McINTOSH, B., BGS and BAAS photo databases 58–60
MACLEOD, A., discusses *Groundwater: Our Hidden Asset* 94–5
Magnesian Limestone 23
Majungatholus atopus, and ugly monster 210
mammoth finds, in California 168
Mammoth Hot Springs 232, *233*
Manasarovar lake 68
Manchioneal Formation 26–7
limestone succession 27
palaeodepth 27, 28, 30
manganese levels, Norwegian drinking water 106
manganese nodules 82
manganese ores, mining of 150
Manicougan impact crater 136, *137*, 200
mantle, noble metals in 103
mantle plumes 99–100, 102–3
beneath Iceland 98
Maplewell Group 195, 196
marble, in White Watson's Tablets 21, 23
margarite 36
marine sediments, deep, bacteria in 63–4
Markuelia, containing embryos 64
Marlbank National Nature Reserve 152–3
Mars
erosional and depositional eolian landforms 139
volcanic eruption on 3
Mars Global Surveyor, detection of magnetism 8
Mars lander and rover 8
Mars Pathfinder 8
massive sulphide deposits, Juan de Fuca Ridge, activity style changes with depth 218–19
Meerssen Member, ophiuroids in 79
megafaults 11
megaturbidites 138
Melonechinus 235, *237*, *238*
Melton Chalk 167
meltwaters 199
Melville, C.P. *see* Ambraseys, N.N., Adams, R.D. and Melville, C.P.
Meru, Mount, mythical peak, and Kailas 68
Mesa Falls Tuff 230
Mesopotamian cuneiform tablets, made from Esra-marl clay 168
metal coating, leaves 99
metal mining fields, UK, collapses over 146–7
metal work, of the Albert Memorial, repaired and regilded 213–14
metal working technology, Bronze age 187
meteor flash, UK 122
Meteorite Craters and Impact Structures of the Earth, P. Hodge 39–40
meteorites
ALH84001
amino acids judged contaminants 138
examined, but no life on Mars 13–14
'life' survives coating 42
temperature of carbonate formation 14
destroying milk churns 84
expensive 125
from Mars, authenticated – and costly 208
impact at the K–T Boundary 224–5
presolar grains in 181
stolen by Peary 141
Tatahouine meteorite 220
meteoritic material, most expensive 48–9
meteors 177
methane hydrate, unusual circumstances 2–3
the micas (Minerals explained 24) 32–6
alteration of 34
brittle micas 35–6
chemistry 34
curation 35
environment 34
locations 35
nomenclature 32–3
structure and physical features 33–4
uses of 35
Micrometeorites 177–81
containing vesicles 179
important areas of collection 177
may retain low-temperature minerals 179–80
mineralogy is terrestrial 177–8
scoriaceous 179
sources 177–80
unaltered specimens 180–1
micropalaeontology, amber as a data source 160
Mid-Atlantic Ridge
Gakkel Ridge 100
rearrangement of transform faults along 103
Reykjjanes Ridge 98
Midford Sands *134*
Milankovitch cycles 223
and sapropel formation 226
Millstone Grit 23, 96
mine records, old 150–1
Mineralogical Society, Honorary Membership for President of Romania 43
minerals
in micrometeorites 178
National Park Quarry refusal an important precedent 92, 95–6
Minerals '98 45
Minerals explained 32–6, 191–4
mines/mine workings
less well known 150
old
collapse of 145
DoE research study 150
use of as waste dumps 151
Mining in Cornwall, T. Goode 162
Miocidaris? permica 236, 238, *239*
Mitgård, A.K. *see* Banks, D., *et al.*
Mitton, J. *see* Spencer, J.R. and Mitton, J. (eds.)
mixed-layer structures 34
Moho, vertical offset beneath the Urals 218
Monktonhall Colliery 91–2
montmorillonite–muscovite 34
Montserrat, West Indies
civil servants behaving badly! 49
scientists' loss of credibility 125
Soufrière volcano warning ignored 8
moon formation, simulation of 9
MORLAND, G. *see* BANKS, D., *et al.*
mosasauroids, linked to snakes 12
moschellandsbergite 192
Moscow, Palaeontological Institute, an unhappy place 84–5
MOSELEY, J., A-level fieldwork guide: Charnwood Forest 195–8
mouth frame, ophiuroids 78, 79
'mud mounds' 152
mud pools, boiling 230
Mülheim–Kärlich nuclear plant closed, risk of seismic activity 84
Mupe Bay 71, *73*
Mupe Ledges, thrust fault in Chalk 73, *73*
Murchison meteorite, evidence of life forms? 7
Murray, John III 113–14
muscovite 32, 33, 34
dissociation of 34
where found 35
Mussenden Temple, Londonderry coast an Irish folly compounded? 48
cliff stabilization (let.) 140
Geology and the National Trust (let.) 176
mysteries, what lies buried here? 87, *88*

nanoforms, examination, meteorite ALH84001 42
NASA, taking the smaller-project route 8

The NASA Atlas of the Solar System 203–4
National Parks, UK, refusal of quarrying permission in 92, 95–6
natural disasters, death from and damage by 212
Natural History Museum (NHM)
Amber: The Natural Time Capsule, A. Ross 174–5
in favour of charging 168
The Nature of Diamonds, discussed 55–6
nature reserves, local, and geology 46
'Nature's Throne', Lee Valley Park, Cornish Granite blocks 200
Nazca Plate, subduction of and deformation 138
necropysis 156
Nelson Mandela bust, on black gabbro plinth 184
Neocrinus decorus 28
New Zealand
catering for earth-science tourists 53–4
volcanic matters 172
News and Comment 50–60, 86–98, 128–35, 169–75, 210–16
Niger, Ténéré desert, crocodile-like dinosaur found 202
Ninetyeast Ridge, earthquake site 12
Nirex, long-term future unclear 4
NORRIS, R.D. *see* KROON, D. *et al.*
North America, native people and fossils 143
North American amber 156
North American Plate 100
acceleration of 103
North Charnwood Diorite 195
North York Moors National Park, extension at Spaunton Quarry refused 92, 95–6
Northern Caribbean Plate Boundary Zone, Jamaica's position within 30
Northwich, Cheshire, sunk by salt 83
Norway, natural 'contamination' of groundwater 104–13
Norwegian Radiation Protection Authority (NRPA), sampling for radon analyses 108
Norwich
cathedral stones (let.) 221
new Caen Stone for the Cathedral 58
NOWELL, D.
BGS 1 : 50 000 Memoir series to go (let.) 141
Geology of Lulworth Cove, Dorset 71–4
Waving goodbye to tsunami (let.) 176

Obolon' Structure, Ukraine 136, *137*, 220
Ocean Drilling Program (ODP)
Chinese Taipei ODP Consortium as member of Australia/Canada/Chinese Taipei/Korea Consortium 45
Leg 169, drilling through massive sulphide deposits 218
Leg 171B 222–6
see also Japanese–US Integrated Ocean Drilling Program (IODP)
oceanic crust, tectonic stacking of 103
ODP LEG171B SHIPBOARD SCIENTIFIC PARTY *see* KROON, D. *et al.*
oil shale, mined at Kimmeridge and Lothian (Scotland) 149
OKADA, H., Three years after Kobe 53
Old Faithful 231
Old John Member *195*, 196
Oldham Geological Society, and the success of Glodwick Lows 210–11
olivine, in micrometeorites 178, 179
Olivooides, China, containing *Punctatus* embryos 64
the one week house 209
oolites, mined 149
Oort or oort not 2
ophiuroids, post-Palaeozoic (Fossils explained 21) 77–80
classification 77, 78–9
identification of disarticulated ossicles 79–80
morphology of 77–8
preservation and palaeoecology 79
oscillatory zone (def.) 196
'osses eds' (horses heads) 144, 215
ossicles, ophiuroid, disarticulated, identification of 79–80
oxygen
discovered in Moon's atmosphere 209
and the giant planets 61

Pachyrhachis problematicus 11–12
not a squamate but a snake 12
re-examined 12
Pacific Earthquake Engineering Research (PEER) Center 164
Pacific Plate 230
northward subduction of 100
Paddington Station, new limestone flooring 86–7
PAGE, D., Stegosaur tracks, and the persistence of facies 75–7
Palaeocene–Eocene boundary sequences 223
Palaeochinus 235, *237*
palaeodepth, Manchioneal Formation 27, 28, 30
Palaeodiscus 236
palaeomagnetism 14
and the Hawaiian–Emperor chain 101–3
Palaeontological Association, Life and Environment in Purbeck times (symposium) 166
palaeontologists
extinction and discovery 210
ichnology and comparative biomechanics 16
USA, see themselves as threatened 5
palaeontology, money for 48
palaeosymbiosis, in amber 158
Palaeopneustes cristatus 28, *29*
Pangaea 88
assembled from Rodinia fragments 14
Papua New Guinea
exploitation of black smokers 82
Stap Wantaim Graunbruk (Living with Landslides) 54–5
paragonite 33, 34
paralic (def.) 75
parasites, in amber 158, *159*
Paratethys, shallow basin faunas 137
Parker, B. and Constable, C., *Foundations of Geomagnatism* 36–7
PARKES, M.A., Fluoride view (let.) 141
PARSONS, V., Geologis(z)ing in Westmorland 115–17
Peak District, blasting and revegetation experiments 3
Peak District National Park, more conflict within 83
peat
not properly protected 165
use increasing 209
pelites 197
defined 195
finely cleaved 198
laminated 196
tuffaceous 196
Penrhyn Granite 181
pentadactyl limbs 46
The Periglaciation of Great Britain, C.K. Ballantyne and C. Harris 40
Perils of a Restless Planet, E. Zebrowski 36
permafrost, melting in USA and Canada 9
perovskite 12
Petrificata derbiensa 22
petrification 99
petrified trees, County Durham 49
pH, of analysed Norwegian groundwaters 109–10
phantom geologists, *Critical Mass* display of Antony Gormley 131–2
phenocrysts
cracked quartz 196
defined 196
phlogopite 33, 34, 35
Pholidechinus 235, *236*
phosphate nodules 150
Photo-archives *59*, *98*, *134*, *175*
No. 10, Otford Chalk Pit (lets.) 65–6
phyllitic (def.) 197
Pistyll Gwyn, Clwyd, limestone restoration trial 3
plantigrade gait 75
plate tectonics 88
of a different kind 12–13
of life 86
plate-boundary adjustment zone 13
Plateau Rhyolite lavas 230
platey habit, micas 32
Plimer, I.R., fails to get redress against A. Roberts 47
pliosaurs 89
PLUMMER, P., five may not be first (let.) 220
POINAR, G.O., Palaeontology of Amber (Fossils explained 22) 154–60
polar bear skull, Scotland 3
pollution, natural, in Yellowstone 49
polybasite 192
Ponders End arctic period, organic silt 199–200
Pontefract, housing collapse over old mine workings 146
Pope's Grotto, no longer home to Elgin's stalagmites 173–4
Popigai impact structure: dating, relating and finding 60–1
Portland Beds, mined 149
Portland geology 215
Portland limestones 71
Portland Roach Stone 51, 215
Portland Screws 144
Portland Stone 181, 184–5, 213, 215
Portland–Wight basement faults 74
The Prehistoric Gold Research Group 187, 189–90
Seeking the source of the gold used for Irish Bronze-Age goldwork 187–91
pressure solution (def.) 196
Pridoli succession 63
Principles of Geology, C. Lyell abridged reprint 56–7
volumes and editions 114
PRIVETT, K., Mystery picture decoded (let.) 140
The Proterozoic Biosphere, J. W. Schopf and C. Klein 118
proustite 192, 194
pterodactyl, from the Jehol fauna 14–15
pterosaurs 14–15
Punt, near Kilembe, Mount Ruwenzori? 174
Purbeck Beds 71
Mupe Ledges 73
Purbeck, Isle of, barriers to marine erosion 74
Purbeck Marble 149, *221*
Purbeck monocline 72–3
Purbeck Stone 181, 184–5, 213, 215
1996PW, maybe from the Oort cloud 2
Pyramids, copper saws for stone trimming 174
pyrargyrite 192, 194

Quarr Stone 221
Tower of London 47, 90
the true story 89–90
quarries
application to enlarge Spaunton Quarry refused 92, 95–6
limestone, restoration blasting 3
National Parks, permissions voluntarily relinquished 208–9
quartz-feldspar porphyries 195
Queens University, Belfast, geology to cease at 168
Quote–unquote 9, 49, 85, 125–6, 168, 210

radium, in drinking water 105
radon
even low-level causes cancer 167
in Norwegian drinking water 105, 106
test on offer 82
Rahona ostromi, both avian and theropod features 219–20
Raistrick, Arthur 163
Rakas Tal, salt lake 68
Raton Formation, probable tyrannosaurus track 17
reef crest/flat 26
reef framework builders 26

reefs
fossil, economic importance of 26
Pleistocene, Jamaica 26–30
REIMANN, C. *see* BANKS, D., *et al.*
Rhynie Chert 94
Rievaulx Abbey, Yorkshire, 16th century blast furnace 209–10
RIGS groups and sites 46
ring faults/faulting 11
Robin Hood's Bay, Yorks. *98*
ROBINSON, E.
BGS Booklets 94
Geological monuments on the South Bank 181–6
Large changes, small consistencies (Branch Line) 119–20
Lee Valley Regional Park (Branch Line) 198–200
Tourism in geological landscapes 151–3
on the United Kingdom Mineral Yearbook 1997 91–2
Rochechouart impact crater 136, *137*, 200
Rocheret Stone (gris and jaune), for Paddington Station 87
rock varnish, dating, accusations of tampering 122–3
rocks, oldest 48
Rocks and Landscapes of Huddersfield, Huddersfield Geology Group 97
Rodinia, disintegration of 14
Romer/Simpson Medal, for Dr Loris S. Russell 228
roofing slates 196
Ross, A., *Amber: The Natural Time Capsule* 174–5
Royal Society of Edinburgh, new Fellows 126
Rubislaw Granite 162–3, 182
Russell, Loris Shano, a great Canadian palaeontologist 226–8
Russian Platform, stability of and graptolite studies 63
Rustenberg Gabbro 183

Saint Martin impact crater 136, *137*, 200
sand, thixotropic flow 197
sand mines 148
Sandhills Lodge Breccia 196
Sandhills Lodge Member *195*
sandstone, imported from India for building/-paving 167
sandur plain, Skeidarár, affected by mega-floods 97
Santana Formation, fossil sea turtle in 219
Santanachelys gaffneyi, fossil sea turtle 219
sapropels 226
satellite altimetry, used in seamount dating 13
satellites, possibility of destruction by dust particles 177
Scarborough Hotel disaster, who pays? 7–8
The Scenic Landscapes of Cavan and Fermanagh GSNI/GSI 152
Schopf, J.W. and Klein, C., *The Proterozoic Biosphere* 118
Science 2–3, 42–3
Scilly Granite 110
Scipionyx samniticus 126
Scotland 122
Caithness Flags 83
cold in 3
overview of alluvial gold 190
The Earth-Fun Roadshow 88–9
SCOTT, A.C., Remarkable trees indeed (let.) 15
Scunthorpe, Coat of Arms contains *Gryphaea arcuta* shells 143
seafloor age, from magnetic data 13
seamounts, dating of 13
A Second Visit to the United States, C. Lyell 115
'A Section of a Mountain in Derbyshire', White Watson 21
Sedimentation of Organic Particles, A. Traverse (ed.) 38
Seeking the source of gold used for Irish Bronze-Age goldwork 187–91
background and history of the projects 187–90
the archaeological problem 187–8
characterization of indigenous gold deposits 189
LA-ICP-MS 188–9
summary of work carried out so far 190–1
seismic event 120
seismic tomography, used to detect subducted Farallon slabs 10
The Seismicity of Egypt, Arabia and the Red Sea, N. N. Ambraseys, C. P. Melville and R. D. Adams 118–19
Sena, Yemen, mystery stone 84
serial disasters, Renaissance frescoes 124
sericite 33
serpentinite, ophiolitic 70
Shahai Formation 169
shake feeding, *T. rex* 19
sheet mica 35
Sherwood Sandstone mining in 148
Stockport Caves (Air Raid Shelters) 132–3, 148
Shiva crater 7
shocked quartz
Blake Nose 224
Popigai 60
Shoemaker, Eugene, final lunar journey 82
shooting stars
Coleridge rumbled 83
see also meteors
sideritic sphaeroids 137
SIEWERS, U. *see* BANKS, D., *et al.*
silent warnings 2
sillimanite 34
Silurian Basins, oil drilling cores for graptolite studies 63
silver iodide, in cloud seeding 194
Silver (Minerals explained 25) 191–4
areas where found 193
chemistry of 192
curation of 194
environment 192–3
extraction from ores 193
found in Britain 192
germicidal properties of 194
a member of the Gold Group 192
native silver 192, 193
scrap, reclamation of 193
sterling silver 193–4
structure of 192
uses of 191, 193–4
Sinosauropteryx, part of Jehol fauna 135–6
Sites of Special Scientific Interest (SSSIs), Merrivale is 4000th 164–5
skulls, *T. rex*
enormous head size an evolutionary advantage 19
eye fenestra 17
highly fenestrated 17
major sutures interdigitated and overlap 17
slate, and pseudo-slates, mined 149
slate squares, Borrowdale Volcanic series 185
slaty cleavage 196, 198
defined 196
slickensides 197
defined 197
Sliding Stone Slump Breccia *195*
slump breccia 196
a marker horizon 197
SMITH, A, The end of geology teaching in Aberystwyth 51–2
snake most primitive 11–12
Snake River basalts 230
Snowdonia National Park, quarrying rights given up 209
sodium, in Norwegian drinking water 105–6
solar insolation, changed by eccentricity, obliquity and precession 223
Somalian Plate 12
Somerset, hunting ground for ammonites 51
Soufrière Hills Volcano, Montserrat, UN-sponsored report ignored and 'lost' 8
Sour Creek Dome, Yellowstone 234
South American Plate and African Plate, relative motion between 103
subduction of Pacific Plate beneath 103
South Charnwood Diorite 195
South Crofty tin mine 126
Southampton Oceanography Centre, lacking 'world class' facilities! 123
Southbourne Cliffs, Bournemouth *215*
spar workings, Derbyshire, spectacular collapses over 147
Spencer, J.R. and Mitton, J. (eds.), *The Great Comet Crash* 39
Sperrin Mountains, discovery of gold in 190
Sphecomyrma freyi 202–3
spherule bed, Blake Nose 224–5
spherule marker bed, Hammersley basin, Ir and Ru anomalies 217
spider parasitism 158
spines, ophiuroid, apressed or erect 79
Stable Pit Quartz-arenite Member *195*, 197
Stair Hole, Portland limestone breached 71, 74
Stardust 8
Steno (Stensen), Niels 142–3
stephanite 192
Stonesfield roofing 'slates' 149
STOW, D.A.V., Disaster Blackspot in north-east India 211–12
STRAND, T. *see* BANKS, D., *et al.*
Strategic Defense Initiative Organization, Clementine 1 and 2 8
The Student's Lyell, ed. J. W. Judd 115
subducted slabs, detected at depth 10
Suchominus tenerensis 202
Sulphur Creek Tuff 233
sunquake 166
superfaults 11
intact rock slides 11
supermelting 10–11
Sutlej River 68
Sweden, radon in drinking water 105
Swithland Formation *195*, 198
Swithland Slate 198, 213
sylvanite 192

Talundilly structure 220
taphonomy, of amber 156
tar 'mining' 150
Tarbosaurus see Tyrannosaurus rex
Tatahouine meteorite, growth of calcite aggregates with time 220
TAYLOR, M
From sea to land and back again 170
Lyell's Principles made freshly accessible 56–7
TAYLOR, P.D., Fossils in folklore 36–7
Teach Yourself Geology, D. Rothery 163
'Teach youself' books, then and now 163
teacher training colleges, geology at Cheltenham 31–2
The Tectonic Evolution of Asia, eds. A. Yin and T. M. Harrison 36
tektites 224
tension gashes, sigmoidal (def.) 197
Terebratulina 27
terrace gravels 199
thallium *108*
Thames terraces 198
The Earth-Fun Roadshow 88–9
theme maps, from Geological Survey of Ireland (GSI) 152
Thermal Alteration Index 101
thixotropy (def.) 197
THOMPSON, E., Chalky rainwash at Otford, Kent (let.) 66
thorium, in drinking water 105
THULBORN, T., dinosaur tracks at Broome (let.) 139
Tibetan Plateau
continental accretion and succession in the Mesozoic 63
high plateau owes origins to terrane accretion 69–70
Tichosina 27
tin mining, in UK 126
Titanic monument, Southampton, Rubislaw Granite 162–3
toadstones 143
TOKARYK, T.T
A faecal moment recorded 133–4
One of the last early giants 226–8
Tonankai earthquake, Japan, observed uplift 2

tonguestones (fossil sharks teeth) 142–3
Tookoonooka structure 220
Topics 26–32, 75–7, 113–17, 151–3, 187–91, 226–8
tourism, New Zealand 53–4
Tourism in geological landscapes 151–3
Tower of London
  Chapel of St John 90
  White Tower 47
trace fossils, in amber 158, *159*, 160
Travels in North America, C. Lyell 115
Traverse, A. (ed.), *Sedimentation of Organic Particles* 38
travertine, Yellowstone 230
  terraced deposits 232, *233*
Trigonia Beds *134*
true polar wander (TPW) 14
tsunamis
  and asteroid impact 82
  from catastrophic slope failure 138
  waving goodbye to (let.) 176
tubeworms, Haakon Mosby Mud Volcano 3
tuffs 195, 196
  see also dust tuffs
  turbidites 138
twinning, in micas 33
Tyndrum, Argyll, gold discovered 190
Tyrannosaurus rex 16–20, 133–4
  biomechanics 17–18
  eyes small and beady 20
  leg bones too weak for speed 83
  partially excavated specimen attacked 9
  as a predator 19–20
  problem of tiny forelimbs 18, 19
  purpose of heavily reinforced skull 18
  as a scavenger 18–19
  Sue
    auctioned 47–8
    name to be changed 84
    sold at last 8–9
tyrannosaurus tracks 16, 17

UK
  A country full of holes 145–51
  East coast disasters 7–8, 125
UK RIGS Conference, assessment of the success of RIGS schemes 4
UN International Decade for Natural Disaster Reduction (IDNDR) 212
unconformities, ORS-Lower Palaeozoic, Waterford Harbour 4, 5
University of Wales, Aberystwyth, end of geology teaching at 51–2
  letter 139–40
uranium
  in drinking water 105, 106
  in unfiltered bedrock groundwaters *108*
Uranus, two irregular satellites 219
US Geological Survey
  Charles Groat the new director 206
  cost cutting move from Menlo Park proposed 6
  removal delayed 127
US National Academy of Sciences, three Earth scientists elected 162
USA
  California
    earthquakes 137, 208, 218
    mammoth finds 168
  failure of Fossil Preservation Bill 48
  largest tyrannosaurus 16
  melting of permafrost 9
  mid-southern sector, no impacts after all 216
  Native American oil 167
  ranch owners want money for fossil digs 49
Utatsusaurus hataii 219

Vadum Jacob (Crusader castle), foundations left to record future deformations 218
Vatican, building an astronomical observatory in Arizona 48
Vedde Ash layer, identified at Borrobol, Scotland 42–3
vegetation
  Mesozoic, in *Food of the Dinosaurs* 205
  unfortunate effects in Cheddar Gorge 131
vermiculite 34, 35
vertebrates, from sea to land and back again 170
Vesuvius, a new disaster in the making 124
Voight family 85
volcanic eruptions 88
  subglacial and the Skeidarár megaflood 97–8
volcanism
  explosive 216
  Martian 3
  rhyolitic 229–30
  silicate, on Io 64
Volcanoes and earthquakes 36–7

wadis, Triassic 197
Wales, lack of BGS map coverage 165
WALTHAM, T
  Canyonlands: A Guidebook to the Geology of the Colorado Plateau 165
  Jamaica: a country of holes 91
  Kailas: geology of a sacred mountain 67–70
  Underground in Stockport 132–3
  Yellowstone National Park (Excursion Guide 12) 229–35
warm springs
  on Juan de Fuca Ridge 216
  off-axis and transport of chemicals between crust and ocean water 216–17
  Wasatch Fault, beneath Salt Lake City, Utah, quiescent 45–6
water
  from space 166
  in upper atmospheres of giant planets 61
water tables, movement of affecting old mine workings 151
Waterloo Bridge, new, Portland Stone Base Bed cladding 185
Wealden deposits 71
  similarity of Broome Sandstone Group to 76–7
Weaubleau structure (Carboniferous) 216
wells
  bedrock, Norway, quality of water from 104, 106–8, 111
  deep, Bangladesh, reaching natural arsenic 85
Wenlock succession 63
West Mercia Mudstones 197
Western Australia, stegosaur tracks and the persistence of facies, Lower Cretaceous 75–7
  stratigraphy 76–7
  tracks 75–6
Westmorland, Geologis(z)ing in 115–17
Westmorland Geological Society 116–17
Westphalian 'A' 211
Whakarewarewa Thermal Reserve 53–4
whales 170
What the papers say 6–9, 46–9, 82–5, 122–6, 166–8, 207–10
Whisky on the Rocks, S. and J. Cribb 130
White Watson's Tablets 21–5
  the delineation book 24
  early influence by John Whitehurst 121–2
  Ecton Tablets 22
  educational Tablets 22–3
  and John Farey 22
  missing Tablet 24
  strata of Derbyshire Tablets 23
  Watson's other activities 24–5
  William Martin and *Petrificata Derbiensa* 22
Whitwick Complex *195*
Why Things Are the Way They Are, B. S. Chandrasekhar 118
Withernsea, and the Millenium 124
Wookey Hole Showcaves, Elgin took our stalagmites! 173–4
Wooton Bassett, possible World Heritage status? 127
worm droppings, ancient 49
WORSLEY, P., Contrasting Skeidarár megaflood hydrographs 97–8
WORSSAM, B.
  Caen at Norwich (let.) 221
  Chalky rainwash at Otford, Kent (let.) 65–6
Wrangell Block 100

xanthophyllite 36

Yellowstone caldera 230, 231
Yellowstone Canyon 232–4
Yellowstone National Park (Excursion Guide 12) 229–35
  geological setting 229–30
  hot springs and geysers 230
  Mammoth Hot Springs 232
  Mud Volcano 234
  Norris Geyser Basin 231–2
  notable features outside the Park 235
  Upper Geyser Basin 231
Yin, A. and Harrison, T.M. (eds.), *The Tectonic Evolution of Asia* 36
Yixian Formation 135, 169
Yorkshire Geological Society, possible Millenium projects 205–6
Younger Dryas, Vedde Ash layer makes correlation easier 43

Zagami meteorite 48–9
Zangbo River 68, 70
Zangbo Suture 70
Zebrowski, E., *Perils of a Restless Planet* 36
Zimmer, C., *At the Water's Edge* 170